

AAMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 1, line 7, as follows:

It is ~~new~~known to provide data processing systems which manipulate secure data and for which it is desirable to ensure a high degree of security. As an example, it is known to provide smart cards which include a data processing system which manipulates secure data, such as secret cryptographic keys, and this data must be kept secret in order to prevent fraud.

Please amend the paragraph beginning at page 1, line 18, as follows:

~~Viewed from one aspect the present invention provides apparatus~~Apparatus for processing data under control of data processing instructions specifying data processing operations; ~~said apparatus comprising~~comprises:

Please amend the paragraph beginning at page 1, line 32, as follows:

~~The invention recognizes that within~~Within a system having at least some instructions of an instruction set which may be executed by more than one execution mechanism, the power signature and other characteristics associated with those instructions can be masked by pseudo randomly selecting different execution mechanisms for the instructions. As an example, if an instruction may be either natively by dedicated hardware or emulated by other software running on the hardware, then this technique pseudo randomly switches between these mechanisms. As well as disguising the power signature associated with the execution of the instruction, the timing of the execution is also markedly altered.

Please amend the paragraph beginning at page 2, line 7, as follows:

In preferred example embodiments ~~of the invention~~ the processing behaviour is further obscured in an advantageous manner when the processing behavior that is associated with an instruction is altered depending upon which execution mechanism was used for the preceding instruction. An example of a reason this might occur, depending upon the previous execution mechanism used a particular data or other value may or may not be cached such that the characteristics associated with the execution of the present instruction are varied depending upon whether the value is or not cached.:

Please amend the paragraph beginning at page 2, line 14, as follows:

Whilst it is possible to use the present technique when only some of the instructions to be executed are capable of execution by different execution mechanisms, the implementation ~~of the invention~~ is advantageously simplified when all of the instructions to be executed by either execution mechanism. Thus, the switching between execution mechanism does not need to take account of the particular instruction concerned.

Please amend the paragraph beginning at page 2, line 20, as follows:

Particular ~~preferred~~ example embodiments which show strongly different characteristics associated with the execution of instructions are ones in which in a first execution mechanism the instruction is executed as a native instruction by hardware and in a second mechanism is emulated by software. Native hardware execution will typically be fast and consume little power, where as software emulation will be relatively slow and consumes more power.

Please amend the paragraph beginning at page 2, line 26, as follows:

Whilst it is possible that the execution mechanisms may be completely independent of one another, it is also possible they overlap to some degree. In ~~preferred example~~ embodiments, ~~of the invention~~ one of the execution mechanisms is software emulation and the other execution mechanism is native hardware based execution of simple instructions with software emulation of more complex instructions. The software emulation of the more complex instructions can be ~~by~~ shared software used by both execution mechanisms.

Please amend the paragraph beginning at page 2, line 33, as follows:

Whilst the instructions that may be subject to the different mechanisms could take a wide variety of different forms, the ~~invention~~ technology is particularly well suited to instructions associated with a virtual machine environment, such as, for example, Java bytecodes. In this context, the first execution mechanism may be native hardware execution of at least some of the Java bytecodes with other Java bytecodes being software emulated with a second execution mechanism that is software emulation of all of the Java bytecodes.